#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re Application of:

Jerrold L. King and Jerry M. Brooks

Serial No: 09/834,696

Filed: April 12, 2001

For: SEMICONDUCTOR CHIP

**PACKAGE** 

Attomey

Docket Number: MICR135.02

Group Art Unit: 2822

Examiner: J. Mitchell

#### DECLARATION OF JERRY M. BROOKS UNDER 37 C.F.R. § 1.131

- 1. I am an inventor of the subject matter claimed in the above captioned patent application. I am employed by Micron Technology, Inc. At the time of my invention, I was under an obligation to and I did assign the Invention to Micron Technology, Inc. My co-inventor Jerrold King is no longer employed by Micron Technology, Inc. and he is not available to sign this Declaration.
- The claimed subject matter was conceived before January 4, 1995 as documented in the Invention Disclosure No. 94-0256 I submitted in September 2004. A copy of the Invention Disclosure No. 94-0256 is attached to this Declaration as Exhibit A.
- 3. The Invention Disclosure was assigned to outside patent counsel Steve Ormiston on February 3, 1995 to prepare a patent application. A copy of the Micron Patent Checklist documenting the assignment of the case to Mr. Ormiston is attached to this Declaration as Exhibit B.
- 4. Mr. Ormiston sent Mr. King and I a first draft of the patent application for review on April 17, 1995 and a revised/final draft for review on May 2, 1995. The finalized application was sent to Micron legal along with the Declaration on May 3, 1995. The Declaration was signed and returned to Mr. Ormiston and the application filed on May 8, 1995. A copy of the transmittals documenting Mr. Ormiston sending

Rule 131 Declaration Serial No. 09/834.696

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us the first and revised draft patent applications and the final application and Declaration are attached to this Declaration as Exhibits C, D and E.

5. All of the activities noted in paragraphs 1-4 above took place in the United States.

I declare that all statements made in this Declaration of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the patent application or any patent issued on that application.

Date

Jerry M. Brooks

Rule 131 Declaration Serial No. 09/834,696 Oct 03 05 11:17a

Steven R. Ormiston

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MICRON TECHNOLOGY, INC. INVENTION DISCLOSURE

1. INVENTOR(S):

Jerrold L. King

Jerry M. Brooks

# SEP 0 1 1994 94-0356

#### . 2. DESCRIPTION

DARPA or Gvt. project? N

- 2.1 Title of invention: RTP ( Real Thin Package )
- 2.2 General description of the invention: Plastic package for a semiconductor device having a package outline slightly larger than the die. Package would be surface mountable with solder ball and standardized foot print.
- 2.2(a) Describe what problem the invention is trying to solve: Other slightly larger than the die package have high costs. This system will not have high costs due to continued use of existing technologies and equipment.
- 2.2(b) Describe what prior solutions have been used to solve this problem:
- i. Tessera, Micro Ball Grid Array
- ii. Mitsubishi, Chip Size Package
  - 2.2(c) Describe the advantages of this invention over these prior solutions:

We could apply existing package technologies and equipment. Other solutions have to use new materials, technologies, and equipment.

- 2.2(d) Describe how the invention works:
- 1. Leadframe has spot plating of Sn for the solder ball contact area and bondable plating for wire bond connection to the semiconductor.
- 2. LOC lamination and wire bond.
- 3. Encapsulation in moldcompound with dimples in the mold which contact the leadframe. This contact secures the die against the mold. This contact insures exposure of the Sn for the solder ball placement and wetting in a later step.
- 4. External Leads could be formed out side the package for zero insertion force sockets to be used in test/burn-in.
- 5. Test/Burn-in
- 6. Solder ball placement and reflow
- 7. lead removal
- 8. Ship to customer

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2.3 Please attach documentation: ie.- drawings, sketches and/or a process flow diagram.

See Fig. 1 and Fig.2

2.4 Please identify similar/related ideas or disclosures and other companies working in the same field. Attach copies, if available.

See 2.2(b)

#### 3. INFORMATION CONCERNING CONCEPTION OF INVENTION

#### 3.1 IMPORTANT DATES AND ACTIVITIES

a. Identify the date you first thought of the invention. (If not sure, give the earliest date of which you are sure.)

8/26/94

- b. Identify to whom the idea first described and the date? (Other than a co-inventor.)
   Doug Kelly and Alan Wood 9/1/94 (Conversation with Mike Brooks)
  - c. Identify the first date when the invention was reduced to a drawing, written description, computer simulation, etc. Please specify type and location.
  - d. Has the invention been disclosed outside the company? \_\_\_\_\_ If yes, to whom, when, and in what form?

no

e. Have any articles describing your invention been published?

If yes, list author(s), title of article, publication and date.

no

f. Have any engineering samples been given out? <u>no</u> If yes, to whom and on what date?

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- Has any product using the invention been sold or offered for g. sale? <u>no</u> If yes, to whom and on what date?
- h. When will (or did) Micron begin use of the invention experimentally?

TBD

When will (or did) Micron begin production of this invention? i.

#### 3.2 MISCELLANEOUS INFORMATION

Was the invention developed during a joint development a. agreement or other contract with an outside company? \_\_\_\_

no

- b. Please list developmental work outside of the company:
- Was this invention conceived or first reduced to practice in c. the performance of work under a Government funded project (including DARPA-funded projects)? IF YES, check "DARPA project" on the front page.

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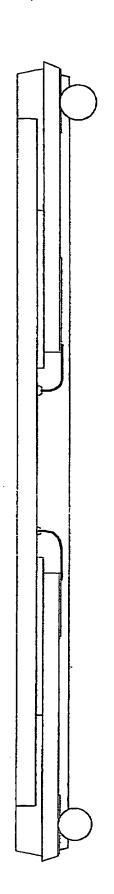
5. INVENTORS:

Name: <u>Jerrold L. King</u>	Micron Phone: X4714
Company Name: M.S.I. Dept. Name (Subsidiary)	: Assembly Dept. #: 200
Street Address: <u>5799 Drawbridge</u> , B	ity) (State) (Zip)
Citizenship: U.S.A.	_
Supervisor: Steve Thummel	
Signature: Jundo II	Date: 41/04
Name: <u>Jerry M. Brooks</u> Micron	Phone: X3167
Company Name: M.S.I. Dept. Nam	ne: Assembly Dept. #: 200
(Subsidiary)	
Street Address: 31/6 5. Florida C	Caldwell
(Street)	(City) (State) (Zip)
Citizenship: U.S.A.	
Supervisor: Doug Kelly	
Signature: Juny MS nows	Date: 9/1/94

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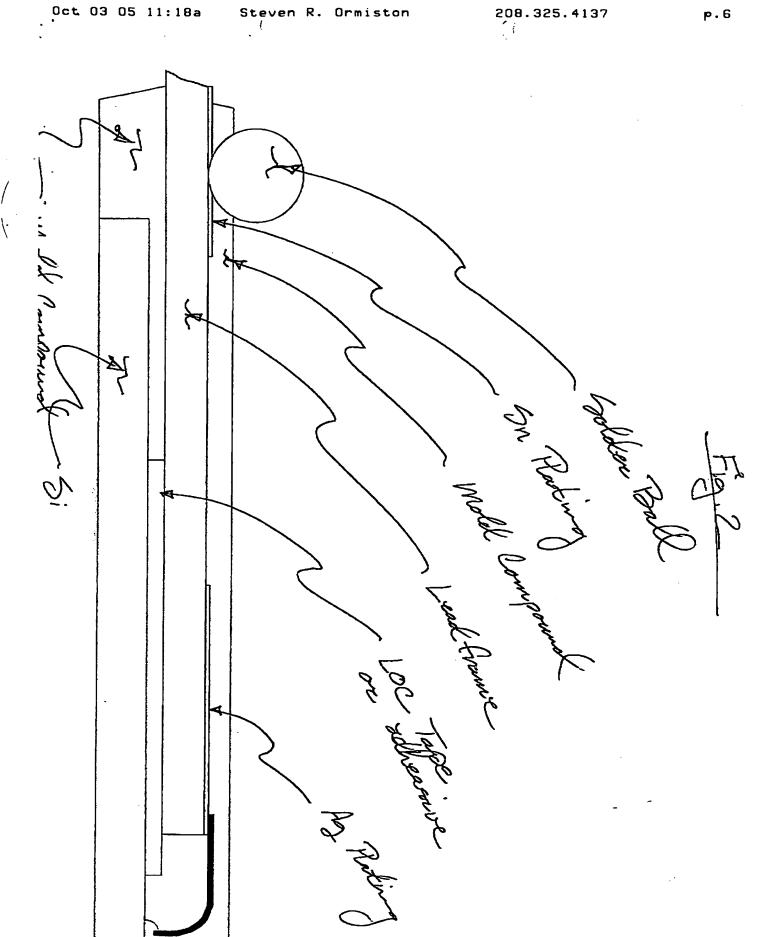
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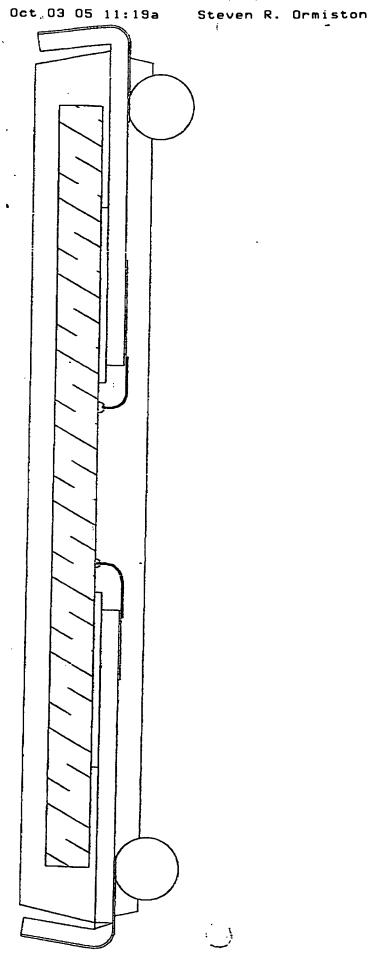
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Thicker Version

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Micron Docket Number: 94-0256

O/A Docket Number:

# Micron Patent Checklist

	Entropy Latent Checklist
Title of Disclosure:	RTP ( REAL THIN PACKAGE)
Inventor(s):	J. King, J. Brooks
A	
a	RPA: This invention was, was not, conceived or first reduced to practice in the performance of an ARPA-funded project.
DISCLOSURE:	
Date: In	
Date: In	Attorney/Agent:
	Possible Time Bar Date:
9-9-911	1
	Patents Program
	Enter 'Disclosed' in 'File Status' field  Enter date disclosed
	Patent Disclosure Review completed by Attorney A
<del></del>	
	File returned to Patent Department from Patent Committee
	E-Mail to inventor(s) regarding file status
INACTIVE DISCLOSURES:	
_	_
	Attorney/Agent statement (reason for inactivating file)
	E-Mail sent to inventor(s); copy of E-Mail in file folder
<del></del>	Patents Program
•	Change 'File Status' to 'Inactive'
	Enter date file inactivated
	Enter 'unassigned' in 'Attorney/Agent' field
	Move file to respective file drawer
. •	
ASSIGNING ATTORNEY/AGENT:	
758	File assigned to Attorney/Agent Stone Com Son
2-3-95 mor	Patents Program

rev. 8/94

Patent Checklist

★ Enter name of Attorney/Agent
★ Enter date assigned

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TELEPHONE (208) 387-0454

EAX (208) 344-3103

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## STEVEN R. ORMISTON

REGISTERED PATENT ATTORNEY 350 N. 9th St., Suite 304 P.O. Box 2894 Boise, Idaho 83701-2894

PATENTS, TRADE SECRETS, TRADEMARKS, COPYRIGHTS AND TECHNOLOGY RELATED CAUSES

April 17, 1995

VIA FAX (208) 368-3339

Jerrold L. King Jerry M. Brooks Micron Technology, Inc. Mail Stop 200 2805 East Columbia Rd. Boise, ID. 83706

> Re: Disclosure No. 94-256 Real Thin Package

Gentlemen:

Enclosed for your review is a draft patent application in the above referenced case. Accompanying the draft are preliminary sketches for Figs. 1-3. The drawings should be done tomorrow or Thursday for Figs. 1-4. I will wait to prepare Figs.5-7 until your review of the draft materials.

Items for which I have questions or which need additional details are noted by bold print. I am available at your convenience to review the draft application. Thank you for your prompt attention to this matter.

Sincerely

Steven R. Ormiston

Enclosures

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Oct 03 05 11:19a Steven R. Ormiston

STEVEN R. ORMISTON Attorney and Counselor

350 N. 9th St., Suite 304 P.O. Box 2894 Boise, Idaho 83701-2894

Telephone: (208) 387-0454 FAX: (208) 344-3103

#### **FAX COVER SHEET**

May 2, 1995

Confidentiality Notice: This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the above address via the US Postal Service. Thank you.

TO:

Jerrold L. King

Jerry M. Brooks

Micron Technology, Inc.

Mail Stop 200

2805 East Columbia Rd.

Boise, ID. 83706

FAX number: (208) 368-3339 Voice number: (208) 368-4714

FROM:

Steven R. Ormiston, Esq.

SRO File: Micron 94-256

PAGES:

Number of pages, including this cover sheet: 16

CALL BACK: If the transmission to you was incomplete or not legible,

please call the individual above listed at (208) 387-0454 or call

the FAX operator at (208) 344-6208.

ADDITIONAL MESSAGE: Final draft patent application and drawings are enclosed for your review. The Declaration and Assignment papers will be available tomorrow for your signature. Please let me know if any additional changes should be made to the application.

EXHIBIT 1

Oct 03 05 11:20a

Steven R. Ormiston

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### STEVEN R. ORMISTON

ATTORNEY AND COUNSELOR 350 N. 9th St., Suite 304 P.O. Box 2894 Boise, Idaho 83701-2894

PATENTS, TRADE SECRETS, TRADEMARKS, COPYRIGHTS AND TECHNOLOGY RELATED CAUSES

LEPHONE (208) 387-0454 X (208) 344-3103 DDEM (208) 387-0270

May 3, 1995

Monica Atkinson
Patent Department, Mail Stop 525
Micron Technology, Inc.
2805 East Columbia Rd.
Boise, ID 83706

Re: Micron Dislcosure No. 94-256

RTP (Real Thin Package)

#### Dear Monica:

The following documents are enclosed:

- 1. One copy of the patent APPLICATION;
- One set of DRAWINGS;
- 3. Original DECLARATION and POWER OF ATTORNEY; and
- Original ASSIGNMENT.

Please present the Declaration and Power of Attorney and Assignment to Messrs. King and Brooks for their signatures and return the same to me for inclusion in the application package we will be filing with the Patent and Trademark Office.

Sincerely,

Steven R. Ormiston

Enclosures